

ABSTRACT OF THE DISCLOSURE

A relaxor ferroelectric solid solution single crystal is capable of making transitions, at temperatures below the Curie temperature, between a first state which has a high permittivity and blocks optical transmission and a second state which has a low permittivity and allows optical transmission. The relaxor ferroelectric solid solution single crystal undergoes a transition to the second state if an electric field above a threshold is applied thereto in the first state. The relaxor ferroelectric solid solution single crystal undergoes a transition to the first state if heated to or above the Curie temperature in the second state.